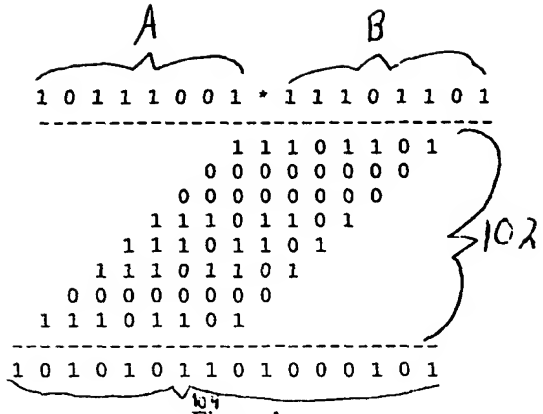

Figure 1

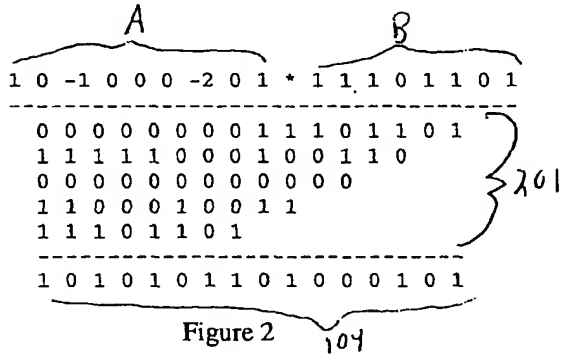

Figure 2

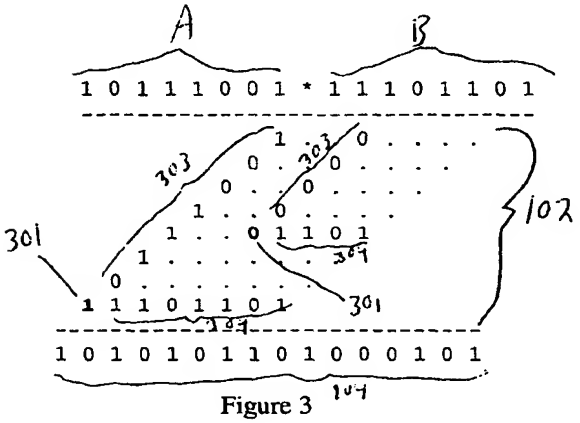

Figure 3

a_k	b_k	peak-bit $a_k b_k$	lower branch	upper branch
0	0	0	[0 0 ... 0]	[0 0 ... 0]
0	1	0	[0 0 ... 0]	$[a_{k-1} \dots a_1 a_0]$
1	0	0	$[b_{k-1} \dots b_1 b_0]$	[0 0 ... 0]
1	1	1	$[b_{k-1} \dots b_1 b_0]$	$[a_{k-1} \dots a_1 a_0]$

Figure 4

```
  0 1 1 1 0 0 1        sequence [a_N-2 ... a_1 a_0]
  1 1 0 1 1 0 1        sequence [b_N-2 ... b_1 b_0]
  -------------
  0 1 0 0 1 1 0        sequence [s_N-2 ... s_1 s_0] (sum)
1 1 1 1 0 0 1          sequence [c_N-1 ... c_2 c_1] (carries)
```

Figure 5

```
                    initial branch length of V
                  ------------------------------------
                      1 0 0                        1
                    0 1 1 0                        2
                  0 1 1 1 0                        3
                1 0 0 1 1 0                        4
              1 0 0 0 1 1 0                        5
            1 0 1 0 0 1 1 0                        6
          1 0 0 1 0 0 1 1 0                        7
```

Figure 6

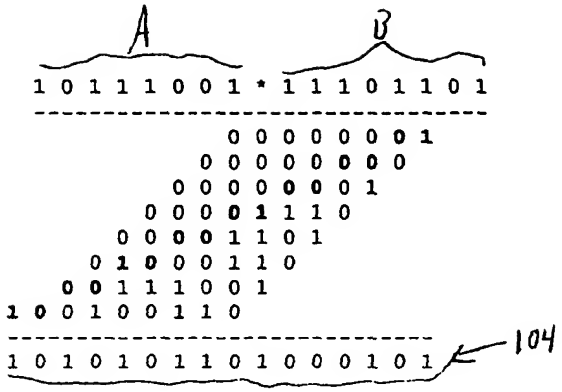

Figure 7

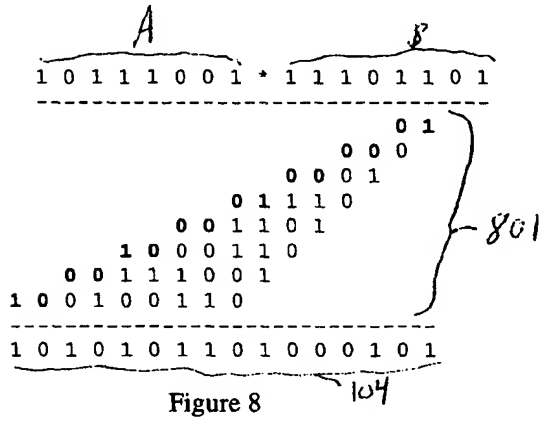

Figure 8

a_k	b_k	line #k
0	0	[0 0 ... 0]
0	1	$[a_{k-1} \ldots a_1 a_0]$
1	0	$[b_{k-1} \ldots b_1 b_0]$
1	1	$[s_{k-1} \ldots s_1 s_0]$

Figure 9

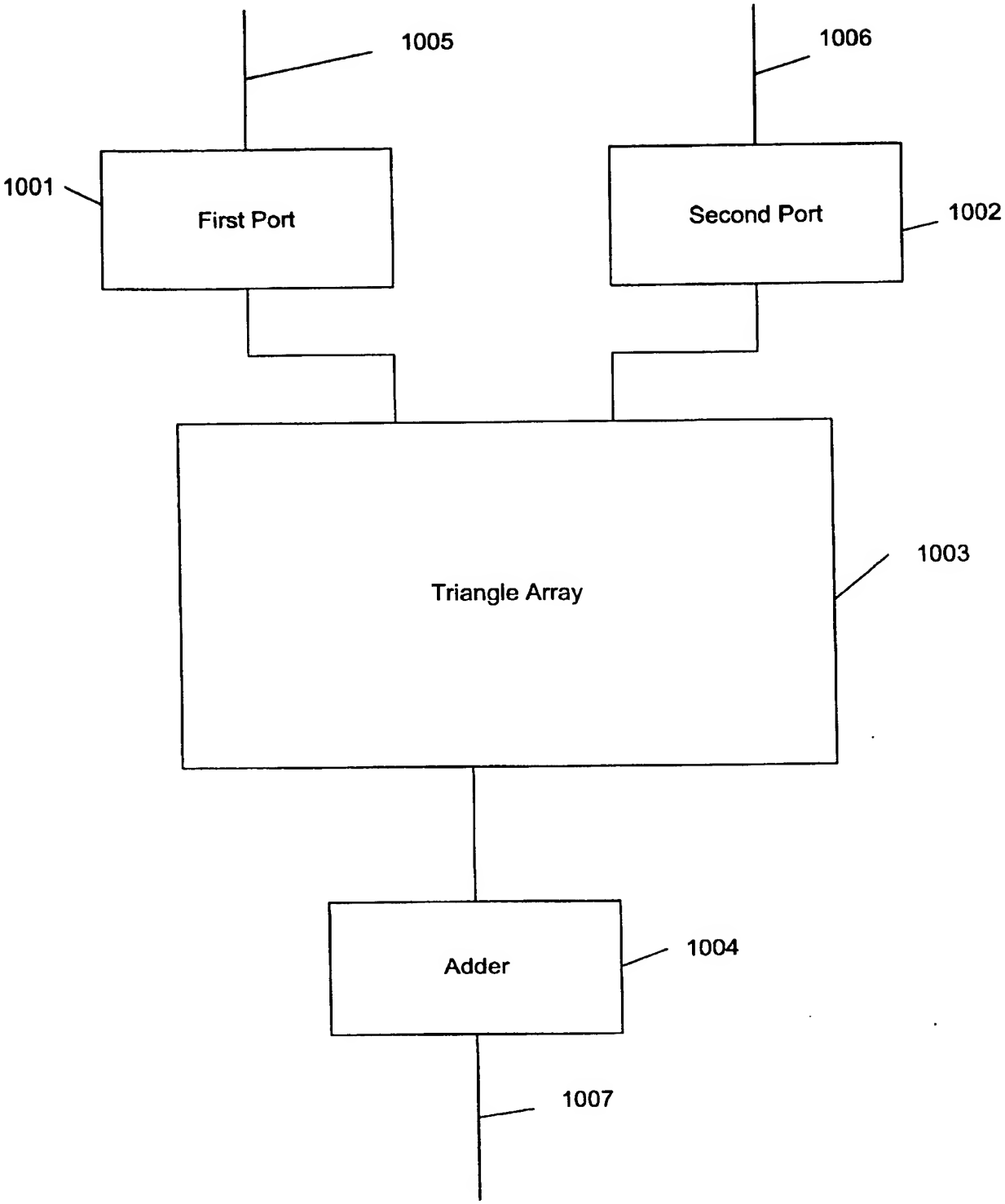
1005
1006
1001
First Port
Second Port
1002
Triangle Array
1003
Adder
1004
1007

Figure 10